



STATUS OF THE OIL AND GAS SECTOR

This review updates the status of U.S. reconstruction projects to increase Iraqi oil production and exports, improve natural gas production, and enhance critical fuel-refining capabilities. Project work is designed to maintain major production fields and to repair key facilities and infrastructure.

SIGIR makes these observations about progress in the oil and gas sector:

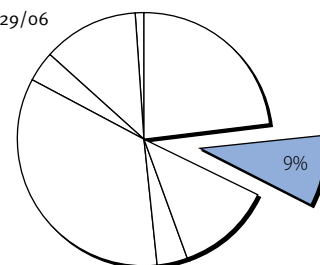
- Expenditures in the sector increased to 47% of allocated funds this quarter. At the current rate of expenditure, this sector will not be complete until after the end of 2006.
- Oil production, which is at 2.18 million barrels per day (BPD), is below pre-war levels and also below the Ministry of Oil goal of 2.3 million BPD.
- Exports are below pre-war levels and relatively stagnant.
- The reasons for the low production and export levels are the severely deteriorated infrastructure, insurgent attacks, and limited sustainment capability.
- Corruption in the oil and gas sector is a continuing problem that could have devastating effects on both the progress of sector reconstruction and on the overall status of the reconstruction and democracy-building effort in Iraq.

The situation in the oil and gas sector has not changed considerably since the January 2006 Report. Crude oil production climbed back to 2.0 million BPD in early March 2006, having averaged lower output levels in January and February, chiefly because of storage and weather issues in the Persian Gulf. Production throughout March 2006 has steadily increased each week, reaching 2.18 million BPD during the last week of the month.

Although U.S.-funded projects continue to progress in developing the sector, Iraqis are not yet fully benefiting from their nation's enormous oil supply. Security and critical infrastructure challenges have not improved significantly since the last quarter, and allegations of corruption in the Ministry of Oil present a substantial challenge to reconstruction.

Total funding for the oil and gas sector has changed little since last quarter, increasing by nearly \$15 million to \$1.736 billion because of proposed funding increases for the Al Fatah

Figure 2-29
**OIL AND GAS SECTOR AS A
 SHARE OF IRRF FUNDS**
 % of \$18.439 Billion
 Source: DoS Iraq Weekly Status Report, 03/29/06





crossing and the Infrastructure Sustainment Program.²³² Figure 2-29 shows the current allocation in oil and gas sector funding as a percentage of total IRRF funding.²³³

The total number of planned projects in this sector increased to 180, including 120 Engineering and Procurement (EP) and 60 Engineering, Procurement, and Construction (EPC) projects.²³⁴ The EP projects are non-construction, primarily to provide spare parts, training, procurement, and other services. These projects include:

- 57 projects executed by design-build contractors for Iraqi operating companies that worked on construction
- 21 government procurement projects
- 27 area task orders
- 15 capacity-development projects for training Ministry of Oil employees and the personnel of Iraqi operating companies²³⁵

Table 2-12 shows the completion status for EP and EPC projects as of the end of the quarter. Figure 2-30 shows reconstruction activity in this sector by governorate. Figure 2-31 shows the status of projects by subsector.

IRRF-funded Activities in the Oil and Gas Sector

Critical oil and gas facilities are nearing completion, and U.S. reconstruction officials hope that construction in the sector will be complete by the end of this year.²³⁶

During this reporting period, \$170 million was expended—up from the \$110 million expended last quarter—bringing the cumula-

tive total to \$820 million. Though almost 90% of the sector's funding has been obligated, only 47% has been expended. The next quarter is expected to have the largest project completion rate, assuming that project schedules hold. If the pace of expenditures for the last six months continues, construction will not be complete until well into next year. Figure 2-32 shows the status of funds in the oil and gas sector.

Key Oil and Gas Projects Completed and Underway

The Al Basrah Oil Terminal (ABOT) task order was 30% complete as of April 6, 2006,²³⁷ comprising 13 individual projects scoped that will provide a total crude-oil loading capacity of 6 million BPD.²³⁸ PCO reported to SIGIR that, as of March 31, 2006, 3 of the 13 projects had been completed,²³⁹ upgrading the safety, effectiveness, and efficiency of loading crude oil onto tankers. This refurbishment helped increase the load-out capacity of one portion of the terminal to its capacity of 3 million BPD.²⁴⁰

The Iraqi Ministry of Oil is beginning to work on a system to meter (and thus measure) all oil production and the flow of petroleum products to foreign markets for export. This metering initiative will complement the metering project being executed by the United States at ABOT,²⁴¹ which is 29.9% complete.²⁴²

Although the Al Fatah pipeline crossing initiative in northern Iraq has suffered repeated delays associated with security, logistical, and weather problems, it is now approaching completion. Its estimated completion date is May 2006, and the project is 96% complete,



EP vs. EPC PROJECT STATUS SUMMARY

TYPE	TOTAL PROJECTS	NOT STARTED	ONGOING	COMPLETED
EP ¹	120	20	72	28
EPC ²	60	5	42	13

Sources: ¹GRD Bi-weekly Situation Report, April 3, 2006, p. 9; ² Iraq Reconstruction Management System (IRMS), as of March 31, 2006.

TABLE 2-12

Figure 2-31

STATUS OF OIL AND GAS PROJECTS

Number of Projects

Source: IRMS—IRMO Rollup File, 03/31/06

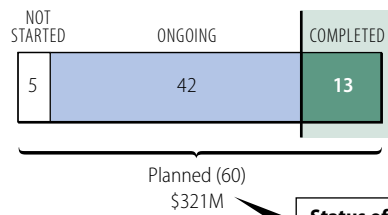
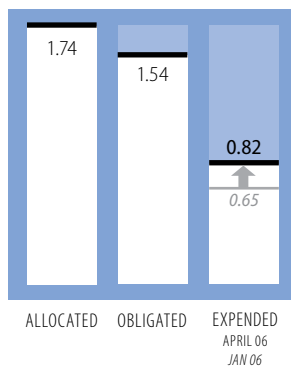


Figure 2-32

STATUS OF OIL AND GAS FUNDS

\$ Billions

Source: DoS Iraq Weekly Status Report, 03/29/06



Status of Projects by Subsector

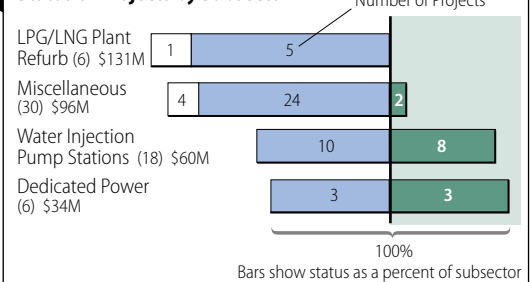


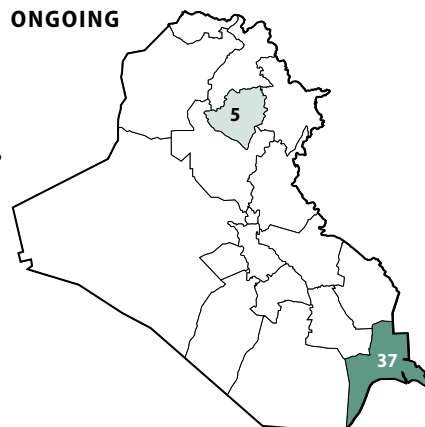
Figure 2-30

OIL AND GAS PROJECTS BY GOVERNORATE

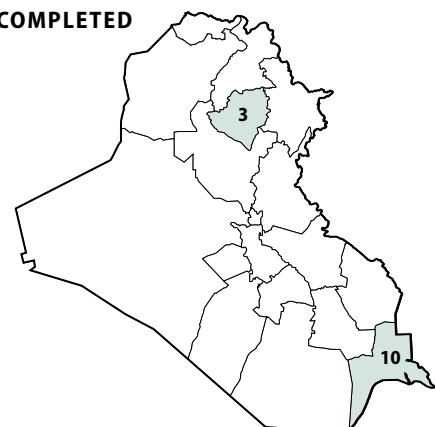
Number of Projects

Source: IRMS—IRMO Rollup File, 03/31/06

ONGOING



COMPLETED





Loading oil tankers at the Al Basrah Oil Terminal

with \$64 million of work accomplished out of a budget of \$67 million.²⁴³ Al Fatah connects crude oil and natural gas distribution from the northern oil fields in Kirkuk to the Baiji Refinery and power plants. The crossing also carries oil through the Iraq-Turkey Pipeline (ITP), the northern route for oil exports. The project is expected to add an additional 300,000 BPD of capacity to the ITP.²⁴⁴

At the Qarmat Ali water injection plant, a task order was initiated to provide treated water for injection wells to maintain reservoir pressure and help sustain production levels in one of the largest southern fields.²⁴⁶ The project will result in increased oil production capacity of 200,000 BPD. Phase I was completed in November 2005, and Phase II is scheduled for

completion by December 2006.²⁴⁷

GRD-PCO also reported progress on 14 Gas-Oil Separation Plants (GOSPs) being refurbished throughout Iraq.²⁵⁰ GOSPs separate associated gas, water, and salts from crude pumped from the well. The GOSPs already completed in northern Iraq have added 300,000 BPD of crude oil production capacity.²⁵¹ The 14 refurbished GOSPs are expected to have the capacity to treat 1 million BPD of crude oil.²⁵² The GOSP projects are expected to be completed by September 2006.²⁵⁴

According to GRD-PCO, five Natural Gas Liquids/Liquefied Petroleum Gas (NGL/LPG) processing plants and storage facilities are currently undergoing refurbishment,²⁵⁵ with the objective of producing 3,000 tons per day



Liquid petroleum gas plant at Khor Zubair

(TPD) of LPG to meet domestic demand. These projects will be completed by September 2006.²⁵⁶ The SR3R Compressor Station in Basrah, which was 57% complete as of mid-March, is considered a critical production component toward reaching the LPG goal of 3,000 TPD.²⁵⁷

Outputs of IRRF-funded Oil and Gas Projects

Progress has been made in improving outputs in this sector, but since reconstruction began 95 oil and gas projects have been descoped or cancelled. Some of these include projects that address flared gas recovery, expansion of existing storage capacity, and pipeline repairs and upgrades.²⁵⁸ Projects were descoped or

cancelled because they were not required to achieve the oil program objectives or because the Ministry of Oil took control of them.

Outcomes of IRRF-funded Oil and Gas Projects

There are at least two ways to measure overall progress in reconstructing the oil and gas sector:

- production capacity, which measures how many barrels of crude oil can be pumped on a daily basis
- daily production levels

Table 2-13 presents both of these metrics and weighs them against their respective pre-war levels and overall U.S. and Iraqi goals.

The Iraqi budget assumes a crude oil pro-



duction average of 2.3 million BPD for 2006,²⁶¹ gradually increasing production to hit 2.5 million BPD by the end of this year. For much of 2006, however, oil production has remained below 2.0 million BPD because of logistical bottlenecks in the south caused by rough seas and a lack of storage, which forced wells to be shut down. Production crept above 2.0 million BPD in March 2006.

Insurgent attacks account for a significant proportion of diminished output in the north, particularly when insurgents target crude pipelines from the Kirkuk oil fields to Baiji. This results in decreased production of crude oil, which impacts the production of refined fuel and thus the generation of electricity.

Northern production averaged 424,000 BPD in 2004 and 312,000 BPD in 2005.²⁶² Current production capacity for the northern fields is estimated to be about 600,000 BPD.²⁶³ Southern crude oil production has a greater oil production capacity, amounting to approximately 1.9 million BPD.²⁶⁵ It provides the majority of Iraqi national production, averaging 1.83 million BPD in 2004 and 1.77 million BPD in 2005.²⁶⁶ Figure 2-33 shows a timeline of oil production levels.

EXPORTS

The oil and gas sector remains the economic mainstay of the Iraqi economy: crude oil exports account for about 94% of Iraq's national income. In 2005, oil exports were estimated to generate \$23.5 billion in revenue,²⁶⁸ but this

positive outcome had more to do with high crude prices than production levels. Exports suffered a variety of setbacks throughout 2005, including insurgent attacks in the north, bad weather, low storage capacity in the south,²⁶⁹ slower than planned reconstruction, and allegations of corruption in Iraqi ministries. Revenues from oil exports in 2006 are forecast to reach approximately \$28 billion by the end of this year.²⁷⁰ Figure 2-34 shows a timeline of monthly exports and associated revenues.

However, exports decreased from a monthly average of 1.37 million BPD in February 2006 to 1.34 million BPD in March, mostly because of poor weather conditions at ABOT.²⁷¹ Overall, average losses in potential export earnings between October and December 2005 were approximately \$90 million per month, and these losses continued into 2006.

REFINING

Domestic refining of critical refined fuels has been limited, particularly regarding domestic fuels. The causes for unstable refining capacity include: post-war accelerated product demand, insurgent attacks on critical oil infrastructure, dilapidated infrastructure, weak operations, and overdue maintenance.²⁷³

Unstable production of critical refined fuels has affected Iraqi access to domestic commodities like gasoline and kerosene, and adversely impacted other sectors. Most notably, the electric sector has suffered many fuel shortages that have caused blackouts.²⁷⁵ During these



OIL AND GAS

CURRENT OIL AND GAS PROJECT OUTCOMES VS. PRE-WAR LEVELS AND GOALS

OUTCOMES METRICS	PRE-WAR LEVEL (2003) ²⁵⁹	CURRENT STATUS	U.S. END- STATE GOAL	IRAQ END- STATE GOAL
Oil Production Capacity (million BPD)	2.6	2.5	2.8	2.8
Oil Production (Actual) (million BPD)	2.58	2.18 ^c	2.8 ^a	2.3 ^b
Export Levels (million BPD)	Not Available	1.32	2.2 ^a	1.65 ^b
Natural Gas Production (MSCFD)	Not Available	600	800	Not Available
LPG (TPD)	Not Available	1,200	3,000	Not Available

^aAccording to a DoS energy expert, these targets are not annual averages.

^bAccording to a DoS energy expert, these targets are annual averages.

^cMarch 27–April 2, DoS *Iraq Weekly Status Report* p. 22

Sources: DoS *Iraq Weekly Status Report*, DOE Country Analysis Brief, meetings and interviews with SIGIR, DoS briefing by U.S. Embassy-Baghdad Oil Metrics (11/30/2005), and “The Oil Story of Iraq,” by PCO (3/2006)

TABLE 2-13

blackouts, water and sewage processing facilities must rely on on-site electricity generators. Figure 2-35 shows days of stock for critical refined fuels since January 2005.

The low domestic production levels of critical refined fuels have led to high demand for costly imports from abroad, most notably from Turkey. Problems associated with the Iraqi government making import payments on time have led Turkish suppliers to refuse to continue delivering these products until being guaranteed payment.²⁷⁷ According to a SIGIR interview with a U.S. government oil expert, no new truck shipments have loaded from Turkey since January 21, 2006. Fuel trucks that were waiting to enter Iraq were allowed to proceed as scheduled; the last of these trucks reached their destinations in Iraq in early March. On February 15, 2006, an initial agreement was reached, but only two payments were subse-

quently made to Turkish exporters, and the dispute continues.

Challenges

The World Bank reports that the short-term outlook for a significant increase in oil production and exports in Iraq remains uncertain. Maintaining current production levels would require new annual investments of at least \$1 billion.²⁷⁸ These projections indicate the difficulty ahead in the effort to reach both Iraqi- and U.S.-stated goals for the sector.

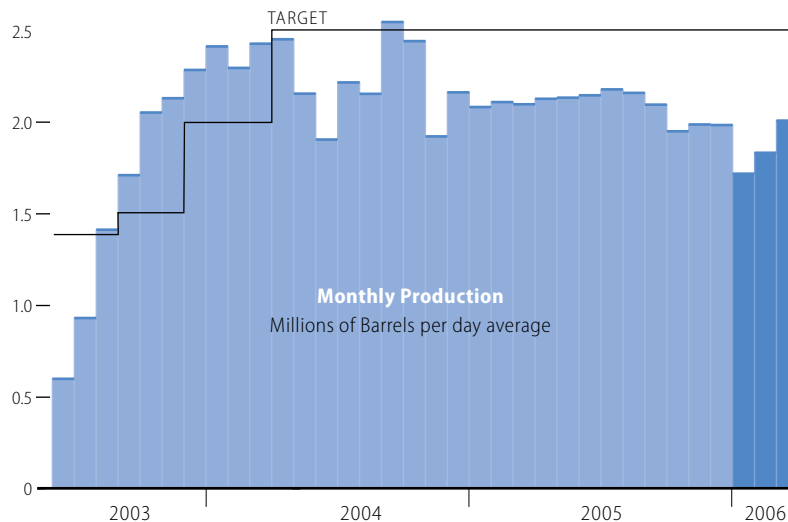
SECURITY

The World Bank reports that “oil production and exports remain heavily constrained by rundown facilities and sabotage.”²⁷⁹ Attacks on oil infrastructure remain a serious problem, despite attempts to bolster infrastructure secu-



OIL AND GAS

Figure 2-33
CRUDE OIL PRODUCTION
 (Millions of BPD)
 Source: IRMO



rity forces. The Ministry of Defense is responsible for guarding pipelines, while the OPF, under the control of the Ministry of Oil, is tasked with guarding all other Iraqi oil industry assets.²⁸⁰ SIGIR's initial assessment (SIGIR 06-009) of programs to train and deploy Iraqi oil protection forces indicated that they have been largely unsuccessful. See Sector 3 of this Report for a full discussion.

Attacks on the northern pipeline have reduced northern oil exports, which account for approximately 15-20% of all oil exports.²⁸¹ These attacks have placed a greater production burden on the southern fields and facilities, which are constrained by limited storage facilities. For instance, on February 1, 2006, insurgents attacked a new desulphurization plant in Kirkuk, which reportedly has a capacity of 1 million BPD. An older plant was brought online to make up for the loss, but it has a capacity of only 500,000 BPD, resulting in a

substantial drop in northern production.²⁸²

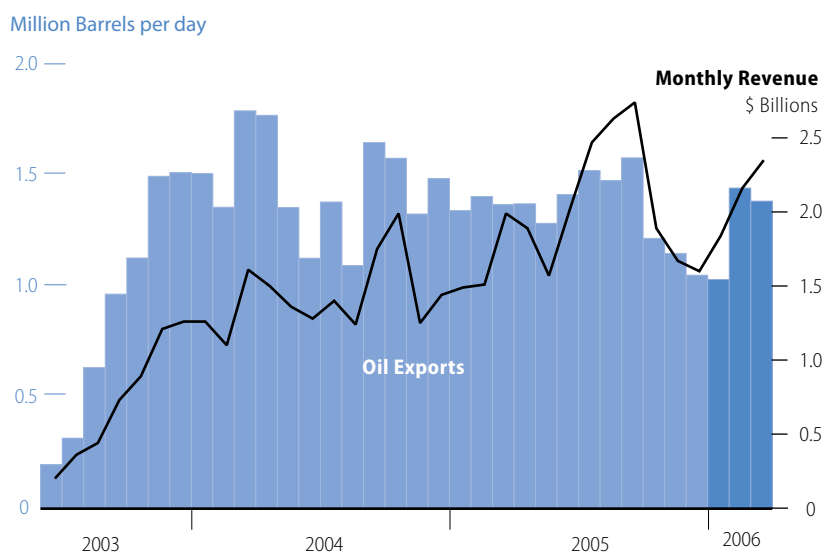
According to the World Bank, the “volatility of oil export revenues may hamper the prospects of Iraq’s reconstruction program.”²⁸³ Moreover, the repositioning of financial resources within the sector to address security concerns has had a deleterious effect on overall oil and gas development.²⁸⁴

SUSTAINMENT

The sustainment of U.S.-funded projects continues to be an important aspect of successfully developing the oil and gas sector. SIGIR reported last quarter that U.S. reconstruction agencies have launched a variety of programs aimed at bolstering capacity development and improving operations and maintenance practices at oil and gas facilities. Reconstruction officials have also launched a number of training courses to address petroleum refining,



Figure 2-34
OIL EXPORTS VS. REVENUE RAISED
 Source: DoS Iraq Weekly Status Reports,
 06/2003 – 03/2006



project management, distribution and marketing, leadership, human resource management, and financial methods.²⁸⁵

decision to not focus more heavily on natural gas and refinery refurbishment is also becoming a sector reconstruction challenge effort.

DETERIORATED INFRASTRUCTURE

In the January 2006 Report, SIGIR identified the deteriorated state of Iraq's oil infrastructure as a significant factor slowing the progress of restoring oil production.

The decision to not prioritize the refurbishment of existing storage facilities or construct new ones, for instance, has affected production, particularly in the south, where exports are impacted by external variables like bad weather in the Gulf, which has lowered production rates and led to harmful crude oil re-injection practices. The decision to descope or cancel a project related to expanding existing storage capacity is potentially problematic given the limited existing storage capacity. The

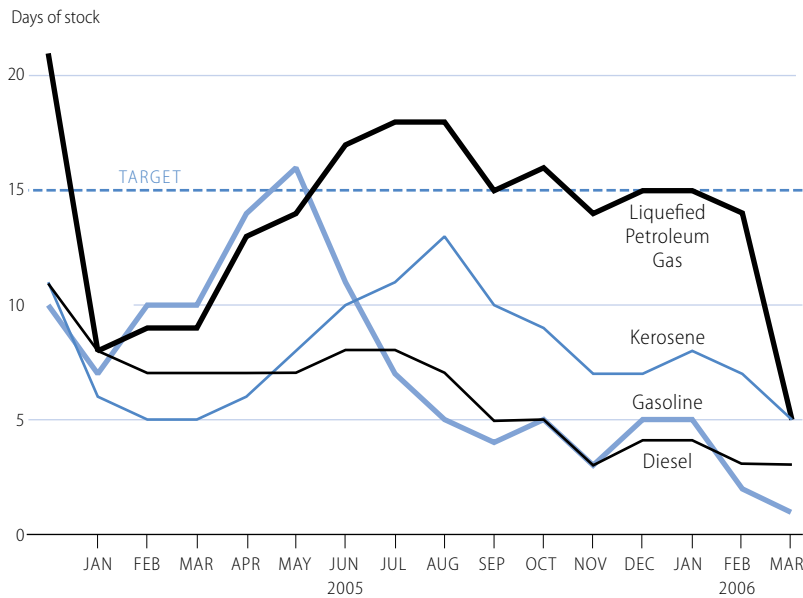
ALLEGATIONS OF CORRUPTION

In 2005, Transparency International ranked Iraq 136th worst of 159 countries that suffer from corruption.²⁸⁷ In the oil and gas sector, in particular, continued market distortions encourage illicit activity and corruption. These market distortions are driven primarily by large government subsidies and state domination of the economy.²⁸⁸

According to one analysis, "corruption has diverted much of Iraq's oil revenue from reconstruction to the bank accounts of government officials and their friends in organized crime."²⁸⁹ A high-ranking reconstruction official stated in mid-February 2006 that corruption is particularly troubling in the oil and



Figure 2-35
INVENTORIES OF CRITICAL REFINED FUELS
 Days of Stock
 Source: DoS *Iraq Weekly Status Reports*,
 01/2004 – 03/2006



gas sector precisely because of oil's economic significance and the lack of an effective and extensive metering system to gauge how much is being pumped relative to what is getting to market.²⁹⁰ Moreover, the insurgency has reportedly been partly funded by corrupt activities within Iraq and from skimming profits from black marketers.²⁹¹

The Iraqi government took steps in December 2005 to dismantle the fuel subsidy system. This is a positive start toward reducing the incentives for such corruption within the Ministry of Oil, as well as reducing smuggling.

Additionally, continued assistance to support the Commission on Public Integrity, the Board of Supreme Audit, and the Ministry of Oil's Inspector General can help mitigate the corruption in the sector.